# U. S. Chemical Safety and Hazard Investigation Board
# RECOMMENDATIONS STATUS CHANGE SUMMARY

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| **Report:** | DuPont LaPorte Facility Toxic Chemical Release |
| **Recommendation Number(s):** | 2015-01-I-TX-R1 through R6 |
| **Date Issued:** | September 30, 2015 |
| **Recipient:** | DuPont LaPorte, Texas Chemical Facility |
| **New Status:** | R1 through R6: Open – Acceptable Response or Alternate Response |
| **Date of Status Change:** | April 13, 2016 |

## Recommendation(s) Text:

**CSB Recommendation No. 2015-01-I-TX-R1**

*Prior to resuming Insecticide Business Unit (IBU) manufacturing operations, conduct a comprehensive engineering analysis of the manufacturing building and the discharge of pressure relief systems with toxic chemical scenarios to assess potential inherently safer design options. At a minimum, evaluate the use of an open building structure, and the direction of toxic chemical leaks and the discharge of pressure relief systems with toxic chemical scenarios to a destruction system. Implement inherently safer design principles to the greatest extent feasible and effectively apply the hierarchy of controls such that neither workers nor the public are harmed from potential highly toxic chemical releases. Detail the analysis, findings, and corrective actions in a written report and make this report available to DuPont La Porte employees, their representatives, and the CSB.*

**CSB Recommendation No. 2015-01-I-TX-R2**

*Prior to resuming Insecticide Business Unit (IBU) manufacturing operations, conduct a robust engineering evaluation of the manufacturing building and the dilution air ventilation system that includes the implementation of corrective action(s) to the greatest extent feasible in order to ensure a safe environment for all workers. Develop a documented design basis for the manufacturing building and the air dilution ventilation system that identifies effective controls for highly toxic, asphyxiation, and flammability hazards and implement these controls to the greatest extent feasible. Address nonroutine operations and emergency response activities in the design basis. The design basis for the manufacturing building and the dilution air ventilation system must use the hierarchy of controls and inherently safer design principles to the greatest extent feasible.*

**CSB Recommendation No. 2015-01-I-TX-R3**

*Prior to resuming manufacturing operations, ensure all Insecticides Business Unit (IBU) pressure relief systems are routed to a safe location and effectively apply the hierarchy of controls to protect workers and the public. Commission a pressure relief device analysis, consistent with API Standard 521 and the ASME Code, including a field review. Include an evaluation of relief system discharge location to ensure that relief systems are discharged to a safe location that will prevent toxic exposure, flammability, or asphyxiation hazards in order to ensure public and worker health and safety to the greatest extent feasible. Include an evaluation of relief scenarios consistent with API Standard 521.*

**CSB Recommendation No. 2015-01-I-TX-R4**

*Develop and implement an expedited schedule to perform more robust process hazard analyses (PHAs) consistent with R1, R2, and R3 for all units within the Insecticides Business Unit (IBU). At a minimum, the*

*PHAs must effectively identify and control the hazards referenced in this document utilizing the hierarchy of controls. The PHA schedule must be prioritized based on anticipated risks to the public and workers in order to ensure that the highest risk areas receive priority consideration. At a minimum, the more robust PHAs must be consistent with the approach applied to post-incident reviews described above in paragraph 10[1].*

**CSB Recommendation No. 2015-01-I-TX-R5**
*Work together with the International Chemical Workers Union Council of the United Food and Commercial Workers (ICWUC/UFCW) Local 900C and the ICWUC/UFCW staff (at the request of the local) to develop and implement a plan to ensure active participation of the workforce and their representatives in the implementation of Recommendations R1 through R4. In addition, provide a copy of DuPont's integrated plan for restart to La Porte workers and their local union representatives.*

**CSB Recommendation No. 2015-01-I-TX-R6**
*Make publicly available (on a website) a summary of the DuPont November 15, 2014 incident investigation report, the integrated plan for restart, and actions to be taken for the implementation of Recommendations R1 through R5. This website must be periodically updated to accurately reflect the integrated plan for restart and implementation of Recommendations R1 through R5.*

## Board Status Change Decision:

### A. Rationale for Recommendation

On November 15, 2014, nearly 24,000 pounds of methyl mercaptan was released inside the Lannate® unit at the E. I. du Pont de Nemours chemical manufacturing facility in La Porte, Texas (DuPont). The release resulted in the fatalities of three operators and a shift supervisor inside the Lannate® manufacturing building. The four DuPont employees died from a combination of asphyxia and acute exposure to toxic chemicals including methyl mercaptan. All four victims were located inside the manufacturing building—three on the third floor and one descending the stairs between the third and second floor.

The Board issued the above interim recommendations to the DuPont LaPorte facility to address the following issues noted in CSB's investigation to date: (1) Lack of an inherently safer design review for the process; (2) Lack of a documented design basis for the manufacturing building; (3) Unsafe relief system discharge points at several locations in the unit; (4) Deficiencies uncovered in existing process hazard analyses; (5) Ensure active workforce participation during the restart; and (6) Ensure public transparency concerning the cause of the accident and ongoing plans for the safe restart of the unit.

### B. Response to the Recommendation

On December 18, 2015, the DuPont LaPorte facility provided the following response to the CSB Recommendations:

R1: DuPont retained outside technical consultants to assist with the analyses of both the manufacturing building and the relief systems and their written reports will address all the stipulations listed in the recommendation. These analyses will consider mechanisms to reduce or eliminate the quantity of toxic materials in the unit consistent with the hierarchy of controls

[1] Reference to paragraph in CSB's DuPont LaPorte Interim Recommendations Report

and the use of inherent safety technology where feasible. A final report on the manufacturing building is scheduled to be completed in March of 2016 and the relief valve analysis final report is scheduled to be completed by the summer of 2016. Upon completion, these reports will be made available to DuPont LaPorte employees, their representatives and the CSB for review.

R2: DuPont has hired an outside technical consultant to do a comprehensive ventilation study of the manufacturing building. Once this review is completed, DuPont will work with architectural and civil engineering experts to develop a documented design basis for the building and the air dilution ventilation system. The design basis will address both non-routine operations and emergency response activities. In connection with this work, DuPont also will consider mechanisms to reduce or eliminate the quantity of toxic materials used in the unit.

R3: DuPont is conducting a comprehensive relief valve study with assistance from an outside technical consultant. The study includes a field review and dispersion analysis of over 600 relief valves and will utilize the codes and consensus standards referenced in the recommendation. This study is currently being conducted in phases with a scheduled completion by summer of 2016. The results of the study will be detailed in a final written report which will be made available to DuPont LaPorte employees, their representatives, and the CSB.

R4: DuPont developed an expedited PHA review schedule for its Insecticides Business Unit. The revised PHA review cycle was compressed from five years to three years with the unit review order reprioritized by highest to lowest potential hazard with those units that need to have their reviews completed prior to startup highlighted. DuPont is also utilizing an outside consulting firm to evaluate all PHAs that are not scheduled to be updated prior to the potential start up. This firm is charged with reviewing these PHAs for any potential deficiencies or improvement opportunities, and to ensure consistency with applicable regulatory standards.

R5: DuPont continues to include local ICWUC/UFCW representatives in the ongoing plan review process so that they are aware of ongoing work activities. Bi-weekly meetings are being held to discuss on-going activities and concerns.

R6: DuPont will make publicly available (on a website) summaries of the DuPont November 15, 2014 incident investigation report, the integrated plan for restart, and actions to be taken for the implementation of Recommendations R1 through R5. The website will be periodically updated to reflect current progress.

## C. Board Analysis and Decision

As the proposed actions by the DuPont LaPorte facility appear to be consistent with the intent of the CSB Recommendations, the status of Recommendation Nos. 2015-01-I-TX-R1 through R6 were changed by the Board to: "**Open—Acceptable Response or Alternate Resposne**."